

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (cancelled)
2. (previously presented) A humidity control system for a fuel cell stack, comprising:
 - a gas supply;
 - a humidifier including an inlet connected to said gas supply and an outlet;
 - a fuel cell stack including an inlet that is connected to said outlet of said humidifier;
 - a bypass line having one end connected between said gas supply and said humidifier and an opposite end connected between said outlet of said humidifier and said inlet of said fuel cell stack; and
 - a valve located in said bypass line,wherein said valve is one of a gas restriction valve and a throttle valve.

3. (currently amended) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a bypass line having one end connected between said gas supply and said humidifier and an opposite end connected between said outlet of said humidifier and said inlet of said fuel cell stack; and

a proportional valve located in said bypass line, said proportional valve being openable at a plurality of positions including a fully open position, a fully closed position, and a plurality of intermediate partially closed positions.

wherein said proportional valve controls the proportion of gas flowing from said gas supply through said humidifier to said fuel cell stack and through said bypass line to said fuel cell stack.

4. (previously presented) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a bypass line having one end connected between said gas supply and

said humidifier and an opposite end connected between said outlet of said humidifier and said inlet of said fuel cell stack;

a valve located in said bypass line;

a humidity sensor for generating a humidity signal based on the humidity of gas entering said fuel cell stack; and

a controller connected to said humidity sensor and said valve for controlling said valve based on said humidity signal.

5. (previously presented) The humidity control system of claim 3 wherein said inlet of said fuel cell stack is one of a cathode flow line and an anode flow line of said fuel cell stack.

6. (cancelled)

7. (previously presented) The humidity control system of claim 8 wherein said valve is a directional valve.

8. (currently amended) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a proportional valve located between said gas supply and said inlet of said humidifier, said proportional valve being openable at a plurality of positions including a fully open position, a fully closed position, and a plurality of intermediate partially closed positions; and

a bypass line having one end connected to said proportional valve and an opposite end connected between said outlet of said humidifier and said inlet of said fuel cell stack,

wherein said proportional valve controls the proportion of gas flowing from said gas supply through said humidifier to said fuel cell stack and through said bypass line to said fuel cell stack.

9. (previously presented) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a valve located between said gas supply and said inlet of said humidifier;

a bypass line having one end connected to said valve and an opposite end connected between said outlet of said humidifier and said inlet of said fuel cell stack;

a humidity sensor for generating a humidity signal based on the humidity of gas entering said fuel cell stack; and

a controller connected to said humidity sensor and said valve for controlling said valve based on said humidity signal.

10. (previously presented) The humidity control system of claim 9 wherein inlet of said fuel cell stack is one of a cathode flow line and an anode flow line of said fuel cell stack.

11. (cancelled)

12. (previously presented) The humidity control system of claim 13 wherein said valve is a directional valve.

13. (currently amended) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a proportional valve located between said outlet of said humidifier and said inlet of said fuel cell stack, said proportional valve being openable at a plurality of positions including a fully open position, a fully closed position, and a plurality of intermediate partially closed positions; and

a bypass line having one end connected to said proportional valve and an opposite end connected between said gas supply and said inlet of said humidifier,

wherein said proportional valve controls the proportion of gas flowing from said gas supply through said humidifier to said fuel cell stack and through said bypass line to said fuel cell stack.

14. (previously presented) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a valve located between said outlet of said humidifier and said inlet of said fuel cell stack;

a bypass line having one end connected to said valve and an opposite end connected between said gas supply and said inlet of said humidifier;

a humidity sensor for generating a humidity signal based on the humidity of gas entering said fuel cell stack; and

a controller connected to said humidity sensor and said valve for controlling said valve based on said humidity signal.

15. (previously presented) The humidity control system of claim 14 wherein said inlet of said fuel cell stack is one of a cathode flow line and an anode flow line of said fuel cell stack.

16. (cancelled)

17. (previously presented) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including a stack inlet that is connected to said outlet of said humidifier;

a valve located between said gas supply and said inlet of said humidifier;

and

a bypass line having one end connected between said gas supply and said valve and an opposite end connected between said outlet of said humidifier and said stack inlet,

wherein said valve is one of an air restriction valve and a throttle valve.

18. (currently amended) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including a stack inlet that is connected to said outlet of said humidifier;

a proportional valve located between said gas supply and said inlet of said humidifier, said proportional valve being openable at a plurality of positions including a fully open position, a fully closed position, and a plurality of intermediate partially closed positions; and

a bypass line having one end connected between said gas supply and said proportional valve and an opposite end connected between said outlet of said humidifier and said stack inlet,

wherein said proportional valve controls the proportion of gas flowing from said gas supply through said humidifier to said fuel cell stack and through said bypass line to said fuel cell stack.

19. (previously presented) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including a stack inlet that is connected to said outlet of said humidifier;

a valve located between said gas supply and said inlet of said humidifier;

a bypass line having one end connected between said gas supply and said valve and an opposite end connected between said outlet of said humidifier and said stack inlet;

a humidity sensor for generating a humidity signal based on the humidity of gas entering said fuel cell stack; and

a controller connected to said humidity sensor and said valve for controlling said valve based on said humidity signal.

20. (previously presented) The humidity control system of claim 19 wherein said stack inlet is one of a cathode flow line and an anode flow line of said fuel cell stack.

21. (currently amended) A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a valve located between said outlet of said humidifier and said inlet of said fuel cell stack; and

a bypass line having one end connected between said valve and said inlet of said fuel cell stack and an opposite end connected between said gas supply and said inlet of said humidifier;

wherein said valve is one of an air restriction valve and a throttle valve.

22. (cancelled)

23. (currently amended) ~~The humidity control system of claim 21~~

A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said humidifier;

a proportional valve located between said outlet of said humidifier and said inlet of said fuel cell stack, said proportional valve being openable at a plurality of positions including a fully open position, a fully closed position, and a plurality of intermediate partially closed positions; and

a bypass line having one end connected between said proportional valve and said inlet of said fuel cell stack and an opposite end connected between said gas supply and said inlet of said humidifier;

wherein said proportional valve controls the ~~amount~~ proportion of gas flowing from said gas supply through said humidifier to said fuel cell stack and through said bypass line to said fuel cell stack.

24. (currently amended) ~~The humidity control system of claim 21 further comprising:~~

A humidity control system for a fuel cell stack, comprising:

a gas supply;

a humidifier including an inlet connected to said gas supply and an outlet;

a fuel cell stack including an inlet that is connected to said outlet of said

humidifier;

a valve located between said outlet of said humidifier and said inlet of said fuel cell stack; and

a bypass line having one end connected between said valve and said inlet of said fuel cell stack and an opposite end connected between said gas supply and said inlet of said humidifier; wherein said valve is one of an air restriction valve and a throttle valve;

a humidity sensor for generating a humidity signal based on the humidity of gas entering said fuel cell stack; and

a controller connected to said humidity sensor and said valve for controlling said valve based on said humidity signal.

25. (original) The humidity control system of claim [21] 24 wherein said inlet of said fuel cell stack is one of a cathode flow line and an anode flow line of said fuel cell stack.

26. (previously presented) The humidity control system of claim 4 wherein said inlet of said fuel cell stack is one of a cathode flow line and an anode flow line of said fuel cell stack.

27. (previously presented) The humidity control system of claim 8 wherein inlet of said fuel cell stack is one of a cathode flow line and an anode flow line of said fuel cell stack.

28. (previously presented) The humidity control system of claim 13 wherein said inlet of said fuel cell stack is one of a cathode flow line and an anode flow line of said fuel cell stack.

29. (previously presented) The humidity control system of claim 18 wherein said stack inlet is one of a cathode flow line and an anode flow line of said fuel cell stack.